

1 WHAT IS CLAIMED IS:

1 1. A method for identifying a compound that modulates sensory
 2 signaling in sensory cells, the method comprising the steps of:
 3 (i) contacting the compound with a sensory cell specific G-protein
 4 alpha subunit polypeptide, the G-protein alpha subunit polypeptide comprising greater
 5 than 70% amino acid sequence identity to a polypeptide having a sequence of SEQ ID
 6 NO:2; and
 7 (ii) determining a functional effect of the compound upon the G-
 8 protein alpha subunit polypeptide.

1 2. The method of ~~claim 1~~, wherein the G-protein alpha subunit
 2 polypeptide specifically binds to polyclonal antibodies generated against SEQ ID NO:2.

1 3. The method of ~~claim 1~~, wherein the G-protein alpha subunit
 2 polypeptide is recombinant.

1 4. The method of claim 1, wherein the functional effect is a chemical
 2 effect.

1 5. The method of ~~claim 1~~, wherein the functional effect is a physical
 2 effect.

1 6. The method of claim 1, wherein the functional effect is determined
 2 by measuring binding of radiolabeled GTP to the G-protein alpha subunit polypeptide or
 3 to a G protein comprising the G-protein alpha subunit polypeptide.

1 7. The method of claim 1, wherein the G-protein alpha subunit
 2 polypeptide is from a mouse, a rat or a human.

1 8. The method of claim 1, wherein the G-protein alpha subunit
 2 polypeptide comprises an amino acid sequence of SEQ ID NO:2.

1 9. The method of ~~claim 1~~, wherein the G-protein alpha subunit
 2 polypeptide is expressed in a cell or a cell membrane.

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1 10. The method of claim 9, wherein the functional effect is measured
2 by determining changes in the electrical activity of cells expressing the G-protein alpha
3 subunit polypeptide.

1 11. The method of claim 10, wherein the changes in electrical activity
2 are measured by an assay selected from the group consisting of a voltage clamp assay, a
3 patch clamp assay, a radiolabeled ion flux assay, or a fluorescence assay using voltage
4 sensitive dyes.

1 12. The method of claim 9, wherein the functional effect is determined
2 by measuring changes in the level of phosphorylation of sensory cell specific proteins.

1 13. The method of claim 9, wherein the functional effect is determined
2 by measuring changes in transcription levels of sensory cell specific genes.

1 14. The method of claim 9, wherein the functional effect is determined
2 by measuring changes in intracellular cAMP, cGMP, IP₃, DAG, or Ca²⁺.

1 15. The method of claim 14, wherein the changes in intracellular
2 cAMP or cGMP are measured using immunoassays.

1 16. The method of claim 9, wherein the cell or cell membrane is
2 attached to a solid substrate.

1 17. The method of claim 9, wherein the cell is a eukaryotic cell.

1 18. The method of claim 17, wherein the cell is a human cell.

1 19. The method of claim 18, wherein the cell is an HEK 293 cell.

1 20. The method of claim 9, wherein the G-protein alpha subunit
2 polypeptide is co-expressed with GPCR-B3 or GPCR-B4.

1 21. The method of claim 1, wherein the G-protein alpha subunit
2 polypeptide is linked to a solid phase.

1 22. The method of claim 21, wherein the G-protein alpha subunit
2 polypeptide is covalently linked to the solid phase.

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1 23. A method for identifying a compound that modulates sensory
2 signaling in sensory cells, the method comprising the steps of:

3 (i) expressing a sensory cell specific G-protein alpha subunit
4 polypeptide in an HEK 293 host cell, wherein the G-protein alpha subunit polypeptide
5 comprises greater than 70% amino acid sequence identity to a polypeptide having a
6 sequence of SEQ ID NO:2;

7 (ii) expressing a sensory cell specific G-protein coupled receptor in
8 the host cell;

9 (iii) contacting the host cell with the compound that modulates
10 sensory signaling in sensory cells; and

11 (iv) determining changes in intracellular calcium levels in the host
12 cell.

1 24. The method of claim 23, wherein the sensory cell specific G-
2 protein coupled receptor is GPCR-B3 or GPCR-B4.

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